

## **Section XVI: Identification of Anabolic Steroids**

### *I. Introduction:*

Suspected Steroid samples are screened and analyzed by GC/FID and subsequently confirmed by GC/MS. Steroids may either be in the form of tablets or injectable oils.

### *II. Reagents:*

- A.) Methylene Chloride (oils dissolve better into this solvent)
- B.) Methanol (for extraction and/or solvent rinse for GC.)

### *III. Equipment:*

- A.) Pipettes
- B.) 2 mL autosampler vials with Teflon caps
- C.) GC/FID: HP 6890 or 7890 A
- D.) GC/MS: HP 6890/5973 or HP 7890A/5975C series.

### *IV. Procedure:*

- A.) Chromatography by GC/FID and GC/MS.

1. Do a visual examination of what the suspected steroid is packaged in, and what it is labeled as. Record in logbook.
2. If in oil form, add 1-2 mL of oil into an autosampler vial and fill to volume with either Methylene Chloride or Methanol.
3. If in tablet form, add half of tablet to an autosampler vial and fill to volume with Methanol.
4. Place vial(s) on the GC/FID autosampler and run with the following sequence: Standard, Blank, Samples.
5. GC/FID conditions are as follows:

Method: STER.M

Oven:

Initial Temp: 230°C

Initial Time: 0.00 min.

Rate: 10°/min.

Final Temp: 290°C

Run Time: 10 min.

Max. Temp: 325°C

Equilibration Time: 0.5 min.

Inlet:

Mode: split (35:1)

Pressure: 24.99 psi

- Gas Type: Helium  
Column:  
Capillary: HP-1 30m x 320um  
Initial Flow: 3.3 mL/min.  
Detector:  
Temp: 300°C  
Hydrogen Flow: 30.0 mL/min.  
Air Flow: 400 mL/min.  
Makeup Gas: Helium
- C.) Obtain chromatographs. If a steroid is present, the instrument will detect a peak and will generate a report with accompanying chromatograph.
- D.) Check concentration to determine if a dilution is needed or if the injection volume needs to be increased for subsequent GC/MS run. Also observe any erroneous data that indicates the sample may have to be reinjected.
- E.) Place same sequence on the GC/MS autosampler and run.
- F.) GC/MS conditions are as follows:  
Method: STER.M  
Oven:  
Initial Temp: 230°C  
Initial Time: 0.00 min.  
Max. Temp: 300°C  
Equilibration Time: 0.50 min.  
Rate: 10°/min.  
Final Temp: 280°C  
Run Time: 35 min.  
Inlet:  
Mode: split (50:1)  
Initial Temp: 250°C  
Pressure: 18.0 psi  
Gas Type: Helium  
Column:  
Capillary: HP-1MS 25m x 200um x 0.33um  
Max. Temp: 300°C  
Initial Flow: 1.0 mL/min.
- G.) If an anabolic steroid is present in sample, the instrument will detect a total ion peak and will generate a report along with accompanying chromatograph and spectra. The spectra will contain the identity of the peak and its ion abundance (see graph, last page).

## *V. Results:*

- A.) Record results of the GC/MS in logbook. Then transfer the results to appropriate evidence cards that came with the actual samples. Be sure to include date of analysis, results, the number of tests performed per sample, and initials.
- B.) All reports generated from the instruments should be filed so that they may be accessed at a later date, if necessary.